

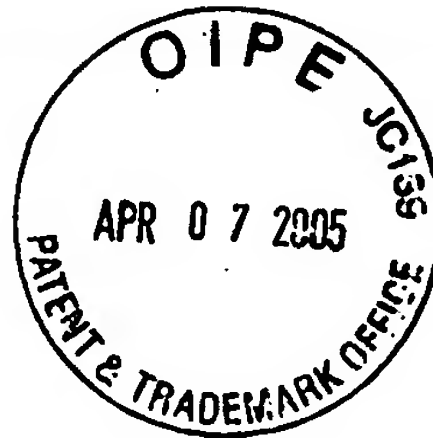
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Vincent Crespi, et al.

Serial No: 10/669,337

Filed: 25 September 2003

Title: DIRECTED FLOW METHOD AND
SYSTEM FOR BULK SEPARATION
OF SINGLE-WALLED TUBULAR
FULLERENES BASED ON HELICITY



Art Unit # 1712

Examiner:

Unknown

INFORMATION DISCLOSURE STATEMENT

Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The Applicants wish to make the following art references of record in the above-identified Patent Application pursuant to 37 C.F.R. §§ 1.97 and 1.98, and to the Duty of Disclosure set forth in 37 C.F.R. § 1.56

Although the information submitted herewith may be "material" to the Examiner's consideration of the subject Patent Application, this submission is not intended to constitute an admission that such information is "prior art" as to the claimed invention.

In accordance with 37 C.F.R. § 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search was made or that no other material information, as defined in 37 C.F.R. § 1.56(b), exists.

The cited references are:

I. Patent references

<u>Ref. No.</u>	<u>Patent No.</u>	<u>Issue Date</u>	<u>Inventor(s)</u>
A	6,841,139	1/11/2005	Margrave, et al.
B	6,423,583	7/23/2002	Avouris, et al.
C	6,368,569	4/9/2002	Haddon, et al.
D	6,333,016	12/25/2001	Resasco, et al.
E	6,331,262	12/18/2001	Haddon, et al.
F	6,303,016	10/16/2001	Diener, et al.
G	2001/0004471	6/21/2001	Zhang
H	5,904,852	5/18/1999	Tour, et al.
I	5,851,503	12/22/1998	Mitani, et al.
J	5,711,927	1/27/1998	Atwood, et al.
K	5,698,174	12/16/1997	Müller, et al.
L	5,695,734	12/9/1997	Ikazaki, et al.
M	5,560,898	10/1/1996	Uchida, et al.
N	5,487,831	1/30/1996	Pirkle, et al.
O	5,338,529	8/16/1994	Pirkle, et al.
P	5,300,203	4/5/1994	Smalley

II. Other art references

<u>Reference No.</u>	<u>Description</u>
A1	Chen, R., et al. "Noncovalent sidewall functionalization of single-walled carbon nanotubes for protein immobilization", J. Am. Chem. Soc., 2001, 123 pp. 3838-9.
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D1	Liu, J., et al., "Fullerene Pipes", Science, May 22, 1998, Vol. 280, pp. 1253-1256.
E1	Georgakilas, V., et al., "Organic Functionalization of Carbon Nanotubes", J. Am. Chem. Soc., Vol. 124, No. 5, 2002, pp. 760 -761
F1	Huang, Y., et al., "Directed assembly of one-dimensional nanostructures into functional networks", Science, Jan 26, 2001, Vol. 291, pp. 630-3.
G1	Buogiorno Nardelli, M., et al., "Mechanism of Strain Release in Carbon Nanotubes", Phys. Rev. B, Vol. 57, No. 8, 1998, pp. 4277-4280.
H1	Zheng, M., et al., "DNA-assisted dispersion and separation of carbon nanotubes", Nature Materials, May 2003, Vol. 2, No.5, pp. 338-42, Advance Online Publication, April 6, 2003, www.nature.com/naturematerials , doi:10.1038/nmat877, pp. 1-5.
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K1	Yakobson, B., et al. "Mechanical relaxation and "intramolecular plasticity" in carbon nanotubes", Appl. Phys. Lett. Vol. 72, No. 8, 1998, pp. 918-920.
L1	Stone, H., et al., "Microfluidics: Basic issues, applications, and challenges", AIChE Journal, Vol. 47, No. 6, June 2001, pp. 1250-1254.

- M1 Service, R., "Nanotechnology. Sorting technique may boost nanotube research", *Science*, Jun 27, 2003, Vol. 300, p. 2018.
- N1 Diehl, M., et al., "Self-assembled, deterministic carbon nanotube wiring networks", *Angew. Chem. Int. Ed. Engl.*, Jan 18, 2002, Vol. 41, No. 2, pp. 353-6.
- O1 Star, A., et al., "Dispersion and solubilization of single-walled carbon nanotubes with a hyperbranched polymer" *Macromolecules*, 2002, Vol. 35, pp. 7516-7520.
- P1 Huczko, A., "Synthesis of Aligned Carbon Nanotubes", *Applied Physics A*, Vol. 74, 2002, pp. 617-638.
- Q1 Chen, J., et al., "Solution properties of single-walled carbon nanotubes", *Science*, Oct 2, 1998, Vol. 282, pp. 95-98.
- R1 Cabodi, M., et al., "Entropic recoil separation of long DNA molecules", *Analytical Chemistry*, Oct. 15, 2002, Vol. 74, No. 20, pp. 5169-5174.
- S1 Star A, et al., "Preparation and Properties of Polymer-Wrapped Single-Walled Carbon Nanotubes", *Angew. Chem. Int. Ed. Engl.*, May 4, 2001, Vol. 40, No. 9, pp. 1721-1725.
- T1 Lynch, M., et al., "Organizing Carbon Nanotubes with Liquid Crystals", *Nano Letters*, Vol. 2, No. 11, 2002, pp. 1197-1201.
- U1 Harte, A., "Liquid Crystals Allow Large-Scale Alignment of Carbon Nanotubes", *CURJ*, November, 2001, Vol. 1, No. 2, pp. 44-49.
- V1 Yanagi, H., et al., "Self-Orientation of Short-Walled Carbon Nanotubes Deposited on Graphite", *J. Appl. Phys.*, Vol. 78, No.10, 2001, pp. 1355-1357.
- W1 Pompeo, F., et al., "Water-solubilization of single-walled carbon nanotubes by functionalization with glucosamine", *NanoLetters* Vol. 2, No. 4, 2002, pp. 369-373.

This Information Disclosure Statement is being filed more than three months subsequent to the filing date of the subject Patent Application, but before the mailing of a first Office Action.

A Form PTO-1449 and copies of the referenced publications are submitted along with this document. It is requested that the Examiner consider the cited references and make them of record in the above-referenced Patent Application.

Respectfully submitted,
FOR: ROSENBERG, KLEIN & LEE

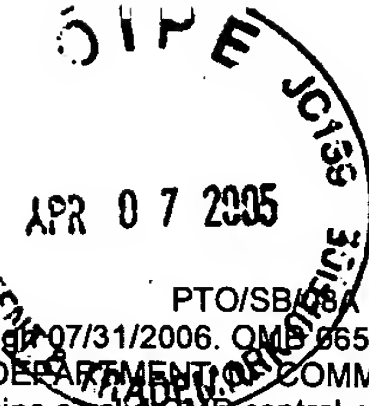
A handwritten signature in cursive script, reading "David I. Klein". The signature is written in dark ink and is positioned above the printed name and registration number.

David I. Klein
Registration #33,253

Dated: 5 April 2005

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Substitute for form 1449/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Application Number	10/669,337
		Filing Date	09/25/2003
		First Named Inventor	V. Crespi, et al.
		Art Unit	1712
		Examiner Name	
Sheet 1	of 4	Attorney Docket Number	MR1735-89

U. S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	A	US- 6,841,139	1/11/2005	Margrave, et al.	
	B	US- 6,423,583	7/23/2002	Avouris, et al.	
	C	US- 6,368,569	4/9/2002	Haddon, et al.	
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FOREIGN PATENT DOCUMENTS						
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		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)				

Examiner Signature	Date Considered
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This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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	F1	Huang, Y., et al., "Directed assembly of one-dimensional nanostructures into functional networks", Science, Jan 26, 2001, Vol. 291, pp. 630-3.	
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	K1	Yakobson, B., et al. "Mechanical relaxation and "intramolecular plasticity" in carbon nanotubes", Appl. Phys. Lett. Vol. 72, No. 8, 1998, pp. 918-920.	
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